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EXAMINER

TRIEU, THAI BA

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,783

Applicant(s)

KAMENOV, KAMEN GEORGE

Examiner

Thai-Ba Trieu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/14/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the Amendment filed on October 14, 2004. Applicant's cooperation in correcting the informalities in the drawing and specification is appreciated. Applicant's cooperation in amending the claims to overcome the claim objections relating to informalities as well as indefinite claim language is also appreciated. Claims 1-4 were cancelled; and claims 5-9 were added.

An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution. The Office cannot aid in selecting an attorney or agent.

Applicant is advised of the availability of the publication "Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office." This publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Specification

1. The amendment filed October 14, 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no

amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: ***“each chamber experiencing first an ignition-expanding, exhaust and intake cycle, and second an additional exhaust and than a compression cycle” and “the invention may air-cooled by installing outwardly pointed heat-radiating ribs on the outside walls of the housing cylinder and the heads.”***

Applicant is required to cancel the new matter in the reply to this Office Action.

2. The disclosure is objected to because of the following informalities:

- On Page 8 of the Amendment filed on October 14, 2004, line 2, ***“apropriate”*** should be replaced by -- **appropriate** – (for correcting typo error).

Appropriate correction is required.

Claim Suggestions

Claims 5-9 are suggested as following to maintain the consistency of the specification and claims, to correct typo and grammatical errors and to avoid of lacking antecedent basis in claims; however, the claim suggestions **do not indicate to be allowable claims**.

1. Claim 5 should be replaced by following:

- 5. ~~[[(CURRENTLY AMENDED)]]~~ **(NEW)**

A four chamber, two-stroke rotatably reciprocating vane internal combustion engine comprising:

a cylindrical casing (1), air-cooled ~~[[by having outwardly pointed heat-radiating ribs on the cylinder and the heads or]]~~ water cooled by having a water jacketed double wall wherein cooling fluid ~~[[passes]]~~ passing through it *(this recitation is required to be strikethrough because it is considered as a new matter)*;

said casing equipped with longitudinally extending walls (2 & 3) being unitary or affixed to the cylindrical casing;

vanes (7 & 8) unitary or affixed to a power output rotary shaft (6), said power output rotary shaft rotatably alternating in back and forth fashion and together with the vanes referred to as the swinging piston;

said power output rotary shaft (6) ~~[[could be]]~~ **is** hollow for water cooling and ~~[[it]]~~ is mounted within the cylindrical casing upon ~~[[air-cooled or-]]~~ water-jacketed end plates or heads (10 & 11) *(this recitation is required to be strikethrough because it is considered as a new matter)*;

sealing strips (9 & 12) embodied in ~~[[groves]]~~ **grooves** and provided between the walls (2 & 3) and the power output rotary shaft (6), between the vanes (7 & 8), the cylindrical casing (1) and the end plates (10 & 11) respectively;

four working chambers (a, b, c and d) formed between the vanes (7 & 8) and the walls (2 & 3) inside the casing change their volume in accordance with the alternating position of the vanes, ~~[[each two of the four chamber rooms experiencing in one cycle and at the same time first a~~

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~~compression stroke and second an ignition expanding, exhaust and intake stroke]~~ *(this recitation is required to be strikethrough because it is considered as a new matter);*

two sets of ports (14 & 15), each one set shared by two chambers, ports ~~[[15]]~~ **(15)** for intake of combustible air-fluid mixture and lubricating oil only and ports (14) for exhaust only ~~[[, or vice versa,]]~~ ;

wherein exhaust ports are always bigger in size to allow release of pressure before intake begins, ~~[[are conveniently]]~~ and located in the cylindrical casing (1) and, or at the end plates (10 & 11), depending upon the desired performance of the engine; and four ignition means (16, 17, 18 & 19), one for each chamber, ~~[[ignite]]~~ igniting the compressed fuel at maximum compression, and firing sequentially in couples into the appropriate working chamber rooms at the end of each cycle. --

2. Claim 6 should be replaced by following:

-- 6. ~~[[(CURRENTLY AWNDED)]]~~ **(NEW)**

~~[[An]]~~ A four chamber, two-stroke rotatably reciprocating vane internal-combustion engine according to claim 1, ~~[[having]]~~ further comprising means for imparting continuous rotation from the alternating power output shaft (6) to a uni-directionally rotating main shaft (22) comprising a crank (36) secured to said power output shaft ~~[[,]]~~ ;

a connecting rod (20) swivably mounted to said crank and to the uni-directionally rotating main shaft (22) through a slot on a flywheel (21),

wherein said connecting rod pivots back and forth across the vertical line passing through the axis of the power output shaft (6) and an axis of the uni-directionally rotating main shaft (22), and

wherein said connecting rod being extendable and adjustable in length at point (27);

[[the]] a lower part of said connecting rod being rotatably and movably attached to the slot formed on the flywheel (21) and being fixed together with a fastening member via [[that]] the slot to said flywheel in a predetermined position thus adjusting the length of the stroke of the swinging piston assembly for an optimum performance; and

said fastening member being comprised of a bolt and a nut coupled to the lower [[end]] part of the rod and to the slot on the flywheel.--

3. Claim 7 should be replaced by following:

7. [[(CURRENTLY AMENDED)]] (NEW)

-- [[An]] A four chamber, two-stroke rotatably reciprocating vane internal combustion engine according to claim 1, wherein as an alternative embodiment, the rigid longitudinal vanes [[(7 & 8, Fig. 5), are]] (7 & 8) and replaced by articulating vanes (28,29,30 & 31) forming four chamber rooms inside the cylinder housing (1); vane segments (29 & 30) corresponding to vane

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~~[[(7 & 8 of Fig.1) in operation move as described in specifications for four chamber two-stroke cycle engine of Fig. 1 where two sets of ports for intake of combustible air mixture and exhaust thereafter and four ignition means (not shown on Fig. 5) accomplish the same results as described in claim 1]] (7 & 8); articulated vane segments (28 & 31) form a different shaping of the chambers a, b, c and d; said vanes are suitably mounted for slidable rotation within slide-bearing means (32 & 33); said vane nutate about the joints (34 & 35) while simultaneously sliding within the bearing (32 & 33); said bearings are rotatable within the casing while allowing the vane segments (28 & 31) to slide therethrough.--~~

4. Claim 8 should be replaced by following:

8. ~~[[(CURRENTLY AMENDED)]]~~ (NEW)

-- ~~[[An]]~~ **A four chamber, two-stroke rotatably reciprocating vane**

internal combustion engine according to claim 1, wherein the intake ports (15) incorporate injection means while at the same time supplying the interior of the four chamber rooms with sufficient air flow for the burning fuel and lubricating oil for the working piston. --

5. Claim 9 should be replaced by following:

9. (NEW)

-- ~~[[A#]]~~ **A four chamber, two-stroke rotatably reciprocating vane**

internal combustion engine according to claim 1, comprising half a cylinder, one set of ports for intake and exhaust, two spark plugs and only one vane thus only one half of the engine, either left or right side (Fig. 1) and only two chambers in operation, a & d, or b & c ~~[[work as described in claim 1]]~~--

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 5-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically:

- In claim 5, line 12, the recitation ***"could be"*** renders the claim indefinite, since it is not clear that under which condition the power output rotary shaft could be hollow; and under which condition the power output rotary shaft could not be hollow. Applicant is required to identify each condition of the power output rotary shaft.

- In claim 5, line 23, the recitation of ***"or vice versa"*** renders the claim indefinite, since it is not clear that under which condition the intake port and the exhaust port have an interchangeable function to each other. Applicant is required to identify the condition when the intake port functions as an exhaust port.

- In claim 5, line 23, the recitation of "exhaust ports always bigger in size" renders the claim indefinite, since it is not clear that how bigger size the exhaust posts are to be compared which ports such as the air intake ports, or the fuel intake ports; or how many inches, centimeters, or millimeters in length or width of the exhaust ports are to be mentioned as to be **"bigger size"**. Applicant is required to clarify the size of the exhaust ports, which are to be compared to which ports in the instant of the application.

- In claim 5, line 31, the recitation of **"depending upon the desired performance of the engine"** renders the claim indefinite, since it is not clear that how the engine performance must depend upon the location of intake and exhaust ports. Applicant should clarify the relation of the engine performance and the location of intake and exhaust ports; as well as, identify which performance of the engine be a desired performance.

- In claim 7, the recitation of **"the vane segments corresponding to vane in operation move as described in specification for four chamber two stroke cycle engine of Fig.1 where two sets of ports for intake of combustible air mixture and exhaust thereafter and four ignition means (not shown on Fig.5) accomplishing the same results as described in claim 1"** renders the claim indefinite, since it is not clear that applicant wants to reference to which **results** in order that the operation move of vane segments are considered as to have the same results as described in claim 1. Additionally, applicant claimed claim 1 be an apparatus claim of a four chamber two-stroke

rotatably reciprocating vane internal combustion engine. Therefore, which **results** are to be referenced to as claimed in claim 7?

- In claim 9, the recitation of "**only two chambers in operation a & d, or b & c**" renders the claim indefinite, since it is not clear that under which condition the four chamber engine works in two-stroke/two-cycle; and under which condition the four chamber engine working in two-stroke/two-cycle becomes the two chamber engine working in two-stroke/two-cycle.

2. The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

A claim in a dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers and requires the dependent claim to further limit the subject matter claimed.

Claim 9 is rejected under 35 U.S.C. 112, fourth paragraph as being broader the claim the subject matter which applicant regards as the invention. Specifically:

- Lines 2-5, the recitation of " half a cylinder, one set of ports for intake and exhaust, ... either left or right side and only two chambers in operation" makes the claim broader than the limitation as claimed in the independent claim 1. Additionally, the dependent claim 9 contains no further limitation as compared to the independent claim 1 (See MPEP 2164.08 [R2]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber (patent Number 1,346,805), in view of the admitted prior art of Meuret (Patent Number 4,599,976), and further in view of Bauer (Patent Number 3,565,049).

Barber discloses a rotatably reciprocating vane internal-combustion engine comprising:

A cylinder casing (3), air-cooled by having outwardly pointed heat-radiating ribs on the cylinder and the heads or water cooled by having a water jacketed double-wall allowing wherein cooling fluid to pass through it (See Figures 2 and 13, Page 2, lines 81-85);

said casing (3) equipped with longitudinally extending walls (4) unitary or affixed to the cylindrical casing (3) (See Figures 1-5 and 12-13);

vanes (7) unitary or affixed to a power output rotary shaft (8), said power output rotary shaft rotatably alternating in a back and forth fashion and together with the vanes referred to as the swinging piston (See Figures 6-8);

said power output rotary shaft (8) is mounted within the cylindrical casing upon air-cooled or water-jacketed end plates or heads (Not Numbered) (See Figure 2);

four working chambers formed between the vanes (7) and the walls (4) inside the casing (3) change their volume in accordance with the alternating position of the vanes, each two of the four chamber rooms experiencing in one cycle and at the same time

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first a compression stroke and second an ignition-expanding, exhaust and intake stroke (See Figures 14-18, and Page 1, lines 92-112);

two sets of ports (13,14,15,16) one set shared by two chambers (See Figures 14-18), ports (24) for intake of combustible air-fluid mixture and ports (25) for exhaust only, or vice-versa, exhaust ports are conveniently located in the cylindrical casing (3) and, or at the end plates (Not Numbered) (See Page 2, lines 57-85);

four ignition means (17), one for each chamber, ignite the compressed fuel at maximum compression, firing sequentially into the appropriate chamber room at the end of the combustion stroke (See Figures 2, Page 2, lines 50-56).

However, Barber fails to disclose two-stroke engine, ports for intake of combustible fluid and lubricating oil, exhaust ports being bigger in size, seal strips, and the power output rotary shaft being hollow for water cooling.

Meuret teaches that it is conventional in the oscillating armature combustion engine art, to utilize two stroke engine (See Column 1, lines 24-27), ports for intake of combustible fluid and lubricating oil for the working piston (See Column 4, lines 62-68, Column 5, lines 1-2, Column 6, lines 66-68, and Column 7, lines 1-5), sealing strips (9, 11) embodied in grooves and provided between the walls (Not Numbered) and the shaft (29), between the vanes (5), the casing (2a) and the end plates respectively (See Figures 1 and 3).

Additionally, Bauer that it is conventional in the rotary engine art, to utilize exhaust ports being bigger in size (See Figure 9) and the power output rotary shaft (B) being hollow for water cooling (See Column 8, lines 19-24).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized ports for intake of combustible fluid and lubricating oil, the seal strips and external valving means with an appropriate cam shaft, as taught by Meuret, to improve performance efficiency of the Barber device, and exhaust ports being bigger in size and the power output rotary shaft being hollow for water cooling, as taught by Bauer, since the use thereof would have reduced friction between the walls and the shaft, and between the casing and the oscillating vanes/pistons, and cooled the engine.

Allowable Subject Matter

Claims 6-7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed October 14, 2004 have been fully considered but they are not persuasive. Claims 5-9 are pending.

Applicant's arguments with respect to claims 5-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The IDS (PTO-1449) filed on October 14, 2004 has been considered. An initialized copy is attached hereto.

- Kim (US Patent Number 6,461,127 b1) discloses a fixed displacement suction and exhaust apparatus utilizing rotary pistons of coaxial structure.
- Doundoulakis (US Patent Number 3,985,110) discloses two rotor engine.
- Posson (US Patent Number 4,136,661) discloses a rotary engine.
- Pernot (Patent Number FR 447,632) discloses a rotary engine.
- Geiger (Patent Number EP 0 575 309 A1) discloses an internal combustion engine being a four chamber two-stroke engine with oscillating pistons.
- Groeneveld et al. (Patent number WO 86/06786 A1) disclose a rotary piston engine being used with a two-stroke or four-stroke cycle and operated by a controlled ignition or self-ignition.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee of \$340 or \$170 (*for Small Entity if applicable*).

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply,

or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

However, the examiner's new telephone number (751) 272-4867 will become effective after the expected changeover date of November 22, 2004.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
October 26, 2004


Thai-Ba Trieu
patent Examiner
Art Unit 3748